Exhibit 7

WATSON LEAVENWORTH KELTON & TAGGART

100 PARK AVENUE

NEW YORK 17

LESLIE D. TAGGART
ELMER R. HELFERICH
NORMAN N. SCHUTTLER
JOHN T. KELTON
JOHN R. JANES
GEORGE P. KRAMER
ROBERT C. NICANDER

NICHOLAS JOHN STATHIS
WILLIAM H. VOGT III
DONALD J. GOODELL
HERBERT BLECKER

LEONARD A. WATSON (1930-1960)
ELLIS W. LEAVENWORTH (1930-1959)

MURRAY HILL 3-4221

CABLE ADDRESS "WATSOLAW"

August 12, 1960

Mr. Henry B. Merritt
McComas Research Center
Philip Morris Incorporated
Richmond 6, Virginia

Re: Use of Bentonite in BL
Our File 582-152

Dear Mr. Merritt:

I have made a preliminary patent survey with respect to the proposal to embody bentonite in the adhesive in the BL process. The below table, for which you supplied the data, gives representative examples of the proposed composition employing bentonite and the present practice respectively:

	Proposed	Current
Tobacco pulp	42.6	47.65
CMC	21.3	31.75
Propylene glycol	10.6	15.85
Acid	4.2	4.75
Bentonite	21.3	
	100.00	100.00
pH	3.5 to 5	2.6 to 2.8

The above composition employing bentonite and CMC in a 1 : 1 ratio gives a tensile strength substantially as good as the current product and of course is much cheaper. Also the product has greater ash strength.

I understand the higher the acid content (and the lower the pH) the greater the wet strength and conversely, of course. Stated otherwise the sodium carboxymethyl cellulose (NaCMC) is water-soluble, whereas the acid type referred to as cellulose glycolic acid (HCMC) is water-insoluble. There are

0000331064

Source: https://www.industrydocuments.ucsf.edu/docs/sjmx0000

I presume intermediate conditions. I understand that Philip Morris measures the property involved in terms of wet strength or more specifically the ratio of wet strength to dry strength in relation to the pH. However, the patents with which we are probably most concerned discuss the material as being water-soluble or insoluble and it will be important for us to determine whether the proposed Philip Morris composition is water-soluble within the meaning of certain patents to Frankenburg. I understand that in the compositions employing bentonite it is desired to work toward the higher pH because, although the wet strength increases as the pH decreases, the adhesiveness decreases.

My investigation of the prior art thus far has been limited to such patents as we have in our present files and particularly patents to General Cigar (Frankenburg) and American Machine & Foundry. Several propose to add bentonite or Kaolin to the adhesive base. I call attention in this respect to the following (copies enclosed):

	Frankenburg et al.	No. 2,592,553 - Apr. 15, 1952
	Frankenburg	No. 2,592,554 - Apr. 15, 1952
	Hungerford et al.	No. 2,734,510 - Feb. 14, 1956
(Br.)	American Machine	No. 698,948 - Oct. 28, 1953

The Frankenburg patent -553 proposes to add to the NaCMC bentonite in a proportion of 1% to 2% by weight based on the weight of the dry tobacco. The Frankenburg patent -554 describes the use of an acid polysaccharide and more specifically sodium or potassium alginate and includes one example in which bentonite is added in the ratio of 1 part bentonite to 4 parts potassium alginate.

The Hungerford patent (AMF) mentions the addition of Kaolin or Fuller's earth and has two examples in which Kaolin is mixed with NaCMC in a ratio of 1 : 2.

The British patent is concerned particularly with the forming of cellulose glycolic acid from the CMC salt in which for example NaCMC is extruded in small filaments into an acid, but the patent goes on to give illustrations of the use of the acid CMC product and states that there may be mixed with it Kaolin, bentonite and Fuller's earth, and describes that the material may be used in producing a reconstituted tobacco sheet.

0003310650

Source: https://www.industrydocuments.ucsf.edu/docs/jpwd0000

Each of the Frankenburg patents must be seriously considered on the question of infringement. One critical factor in determining whether certain claims of these two patents are infringed is that of whether the proposed Philip Morris composition embodies a "water-soluble acid polysaccharide compound" in the case of patent -554, or a "water-soluble cellulose derivative" in the case of patent -553.

The below claims are representative of those which must be considered on the question of infringement, the claim 1 being from patent -553 and claim 15 from patent -554:

> "1. A tobacco product adapted for smoking, which comprises a predominant proportion of dry-ground tobacco and a minor proportion, not exceeding 20% by weight of said tobacco, of a water-soluble cellulose derivative having the property of forming an aqueous solution with a viscosity of at least 1500 centipoises at a temperature of 25° C. when not more than about 2% by weight of said cellulose derivative is dissolved in water, said cellulose derivative functioning to hold the particles of said tobacco together as a coherent mass."

> "15. A tobacco product suited for smoking, which comprises a predominant proportion of dry-ground tobacco and a minor proportion, not more than 20% by weight of said tobacco, of a water-soluble acid polysaccharide compound having the property of forming an aqueous solution with a viscosity of at least 1500 centipoises at 25° C. when not more than about 5% by weight of said polysaccharide is dissolved in water, said polysaccharide functioning to hold said dry-ground tobacco as a coherent mass."

0000331066

The Frankenburg patents are both directed to a process and product in which the ground tobacco is mixed throughout the adhesive matrix as distinguished from the BL process in which a more or less sandwich type of product is made, and

Source: https://www.industrydocuments.ucsf.edu/docs/sjmx0000

there is some basis for arguing that the patents do not cover a BL type of sheet. However, the Frankenburg claims in question are rather broad in this respect in stating that the adhesive serves to hold the tobacco together as a coherent mass.

Another question may be as to whether the Philip Morris adhesive material has a viscosity of at least 1500 centipoises at 25° C. when not more than about 2% by weight is dissolved in water (see claim 1 above), or in the case of claim 15 above when not more than 5% is dissolved in water. This is a technical question for Philip Morris to determine.

The main question, however, is whether the proposed composition is water-soluble. The patents and literature seem to indicate very clearly that the definitely acid type CMC is water-insoluble and the CMC salt is soluble, but I do not find much enlightenment in the patents on the intermediate compounds. However, I refer you to column 3 of Frankenburg -553 where he purports to define what he means by "water-soluble derivative of cellulose". The AMF patents refer to the CMC salt in water as a solution and to the acid CMC as an aqueous dispersion (see e.g. patent -510, col. 4, lines 29-42). I enclose herewith a copy of an article in Industrial & Engineering Chemistry, for October 1945, pages 943-7, containing an article by engineers from Hercules Powder entitled "Carboxymethylcellulose. Uses and Applications" which describes the sodium salt for example as soluble in water and also refers at various points to the "water-insoluble alkali soluble type of carboxymethylcellulose" without defining insofar as I have noted the composition of the water-insoluble type. I do not know, however, that the above article adds much to the Hercules brochures to the trade which you have.

It may be that we can attack the validity of the Frankenburg patent claims and I have some prior art and tentative thoughts on that phase but it seems to me the major question at the moment is the matter of whether the proposed Philip Morris composition is water-soluble and to what degree. That, I believe, is primarily a technical point which Philip Morris should investigate and report on before we can formulate an opinion as to whether the Frankenburg patents would be infringed.

Source: https://www.industrydocuments.ucsf.edu/docs/sjmx0000

Mr. Henry B. Merritt ... 5 August 12, 1960

I shall defer any further investigation or study of the matter until I receive your views on the above.

Sincerely,

E. R. Helferich

Encs.

cc. Dr. Helmut R. Wakeham

ϕ00033106ϕ

Source: https://www.industrydocuments.ucsf.edu/docs/sjnc0000